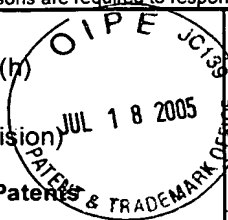


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PETITION FEE
Under 37 CFR 1.17(f), (g) & (h)
TRANSMITTAL
(Fees are subject to annual revision)

Send completed form to: Commissioner for Patents
P.O. Box 1450, Alexandria, VA 22313-1450



Application Number	10/748,886
Filing Date	December 30, 2003
First Named Inventor	N. KASAKO, et al
Art Unit	
Examiner Name	
Attorney Docket Number	H-1215

Enclosed is a petition filed under 37 CFR §1.102(d) that requires a processing fee (37 CFR 1.17(f), (g), or (h)). Payment of \$ 130.00 is enclosed.

This form should be included with the above-mentioned petition and faxed or mailed to the Office using the appropriate Mail Stop (e.g., Mail Stop Petition), if applicable. For transmittal of processing fees under 37 CFR 1.17(i), see form PTO/SB/17i.

Payment of Fees (small entity amounts are NOT available for the petition (fees))

- ☒ The Commissioner is hereby authorized to charge the following fees to Deposit Account No. 50-1417:
- ☐ petition fee under 37 CFR 1.17(f), (g) or (h) ☒ any deficiency of fees and credit of any overpayments
- Enclose a duplicative copy of this form for fee processing.
- ☐ Check in the amount of \$ _____ is enclosed.
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Petition Fees under 37 CFR 1.17(f): Fee \$400 Fee Code 1462

For petitions filed under:

- § 1.53(e) - to accord a filing date.
- § 1.57(a) - to according a filing date.
- § 1.182 - for decision on a question not specifically provided for.
- § 1.183 - to suspend the rules.
- § 1.378(e) for reconsideration of decision on petition refusing to accept delayed payment of maintenance fee in an expired patent.
- § 1.741(b) - to accord a filing date to an application under §1.740 for extension of a patent term.

Petition Fees under 37 CFR 1.17(g): Fee \$200 Fee code 1463

For petitions filed under:

- §1.12 - for access to an assignment record.
- §1.14 - for access to an application.
- §1.47 - for filing by other than all the inventors or a person not the inventor.
- §1.59 - for expungement of information.
- §1.103(a) - to suspend action in an application.
- §1.136(b) - for review of a request for extension of time when the provisions of section 1.136(a) are not available.
- §1.295 - for review of refusal to publish a statutory invention registration.
- §1.296 - to withdraw a request for publication of a statutory invention registration filed on or after the date the notice of intent to publish issued.
- §1.377 - for review of decision refusing to accept and record payment of a maintenance fee filed prior to expiration of a patent.
- §1.550(c) - for patent owner requests for extension of time in *ex parte* reexamination proceedings.
- §1.956 - for patent owner requests for extension of time in *inter partes* reexamination proceedings.
- § 5.12 - for expedited handling of a foreign filing license.
- § 5.15 - for changing the scope of a license.
- § 5.25 - for retroactive license.

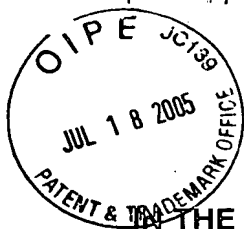
Petition Fees under 37 CFR 1.17(h): Fee \$130 Fee Code 1464

For petitions filed under:

- §1.19(g) - to request documents in a form other than that provided in this part.
- §1.84 - for accepting color drawings or photographs.
- §1.91 - for entry of a model or exhibit.
- §1.102(d) - to make an application special.
- §1.138(c) - to expressly abandon an application to avoid publication.
- §1.313 - to withdraw an application from issue.
- §1.314 - to defer issuance of a patent.

Name (Print/Type)	Daniel J. Stanger	Registration No. (Attorney/Agent)	32,846
Signature	<i>Daniel J. Stanger</i>	Date	July 18, 2005

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.



H-1215

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): N. KASAKO, et al

Serial No.: 10/748,886

Filed: December 30, 2003

For: REMOTE STORAGE DISK CONTROL DEVICE AND METHOD
FOR CONTROLLING THE SAME

PETITION TO MAKE SPECIAL
UNDER 37 CFR §1.102(MPEP §708.02)

MS Petition

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

July 18, 2005

Sir:

Applicants hereby petition the Commissioner to make the above-identified application special in accordance with 37 CFR §1.102(d). Pursuant to MPEP §708.02(VIII), Applicants state the following.

(A) This Petition is accompanied by the fee set forth in 37 CFR §1.17(h).

The Commissioner is hereby authorized to charge any additional payment due, or to credit any overpayment, to Deposit Account No. 50-1417.

(B) All claims are directed to a single invention.

If the Office determines that all claims are not directed to a single invention, Applicant will make an election without traverse as a prerequisite to the grant of special status in conformity with established telephone restriction practice.

07/19/2005 HALI11 00000009 10748886

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(C) A pre-examination search has been conducted.

All pending claims depends from independent claims 30 and 46. Claim 46 is similar to claim 30 with some exceptions. In claim 30, the first and second controllers are not necessarily included with the respective first and second storage devices as per the storage system as recited in the claims.

The search was directed towards a storage system. In particular, the search was directed towards a remote storage disk controller wherein commands from an information processing device 11 are transmitted to a second, third or Nth storage device via a first storage device. See generally FIG. 1. Interaction between the storage devices is provided by way of command devices, which are logical volumes within the storage devices. See page 14, line 9-17. FIG. 5 illustrates a command device management table 501 that is stored in each of the storage devices for identifying and accessing the command devices. Each command is executed by a command execution section 703 within the storage device. See FIG. 7 and page 16, lines 15-18. In order to store data in the second, third, or Nth storage device, commands are transferred and executed to request state of logical volume." See FIG. 11 and page 18, lines 16-24. Data transfer is executed by transfer from a primary volume 1101 to an auxiliary volume. See FIG. 13. However, the data is actually stored as logical blocks (within each of the storage devices) which are defined by logical block addresses (LBAs). The boundary conditions of these LBAs determine the state of data transmission and may be recognized by information processing device 11

through the issuance of a command. See FIG. 15 and page 25, line 24 to page 26, line 4.

In particular, the claims set forth, for example, as illustrated as Steps 1604-1608 in Figs. 16, 8 and 9, that a first controller for a first storage device receives a command, and transfers the command to a second, third or Nth storage device to request a pair status of a logical volume. The pair status of the logical volume is sent by the second storage device in response to the command.

The search of the above features was conducted in the following areas:

<u>Class</u>	<u>Subclasses</u>
711	111, 112, 154

Additionally, a computer database search was conducted on the USPTO systems EAST and WEST.

(D) The following is a list of the references deemed most closely related to the subject matter encompassed by the claims:

<u>U.S. Patent Number</u>	<u>Inventors</u>
5,155,845	Beal, et al
5,664,096	Ichinomiya, et al
6,098,129	Fukuzawa et al
6,209,002	Gagne et al
6,591,351	Urabe et al
6,813,698	Gallo, et al

<u>U.S. Patent Application Publication No.</u>	<u>Inventor(s)</u>
2001/0050915	O'Hare, et al.
2003/0163553	Kitamura, et al.
2003/0229764	Ohno, et al.
2005/0033828	Watanabe

A copy of each of these references (as well as other references uncovered during the search) is enclosed in an accompanying IDS.

(E) It is submitted that the present invention is patentable over the references for the following reasons.

It is submitted that the cited references, whether taken individually or in combination with each other, fail to teach or suggest the invention as claimed. In particular, the cited references, at a minimum, fail to teach or suggest in combination with the other limitations recited in the claims:

a first feature of the present invention as recited in independent claim 30, wherein a first controller uses a command to request a pair status of a first logical volume in a second storage device from the information processing device to the second storage device and transfers the command to the second storage device and a second controller, receives the command from the first storage device and sends the pair status of the first logical volume to the information processing device via the first storage device in response to the command; and

a second feature of the present invention as recited in independent claim 48, wherein a first controller uses a command, which is being sent from the information device to a second storage device to request a pair status of a first logical volume, and transferring the command to the second storage device, and a second controller receives the command from the first storage device and sends the pair status of the first logical volume in response to the command.

To the extent applicable to the present Petition, Applicants submit that although the distinguishing feature(s) may represent a substantial portion of the claimed invention, the claimed invention including said feature(s) and their inter-operation provides a novel storage system and system and method related to or implemented in or by said storage system not taught or suggested by any of the references of record.

The references considered most closely related to the claimed invention are briefly discussed below:

Beal (U.S. Patent No. 5,155,845) relates to a data storage system for providing redundant copies of data on different disk drives. FIG. 1 illustrates that DSC 105 (data storage control unit) is connected to host processor 101 and DSC 107 to transmit and receive read and write requests. See col. 5, line 56-68. FIG. 18 illustrates a sequence message 106 to be transmitted over a data link. As discussed in col. 30, lines 49-65, it is disclosed that the request packet includes a field 2 which identifies a phantom volume of the DSC 105 having no physical correspondence in disk drives 109. Field 3 of the request packet identifies the volume 111 of DSC 107 that is to be written when the user at host processor 101 generates such a subsequently received write request. Thus, as taught, the DSC 105 is conditioned by the receipt of the command sequence shown in Figs. 14-17 to write a record accompanying each subsequently received write request directed to the phantom volume of DSC 105 to the specified remote volume 11 of DSC 107. Thus, the DSC 105 receives each subsequently received write request from a user at host processor 101 and transmits the message sequence

over data link 106 to DSC 107. See col. 25, line 59-63. As illustrated in FIG. 18, the state is "active." See col. 26, line 11-14.

As understood, the message of Beal, does not function as the command which requests a pair status of a logical volume as in the present invention. Thus, Beal fails to teach or suggest the transfer of a command to request pair status, as received from an information processing system, from a first controller of a first storage device to a second, third or Nth storage device with the pair status being sent from the second, third or Nth storage device in response to the command, as claimed.

More particularly, Beal does not teach or suggest the above described first feature of the present invention as recited in independent claim 30 and the above described second feature of the present invention as recited in independent claim 46, in combination with the other limitations recited in each of the independent claims.

Ichinomiya (U.S. Patent No. 5,664,096) relates to a disk array controller capable of preventing data distortion caused by an interruption of a data write operation. FIG. 3 illustrates a write operation, and includes a write control table for managing write statuses. See col. 4, lines 32-40. A write status flag 1211 may form three states: no write indication status (U), writing status (W), and write completed status (C). See col. 4, lines 45-50. FIG. 26 illustrates a flow chart for determining the write statuses. See col. 13, lines 52-57.

As understood, Ichinomiya, does not function as the command which requests a pair status of a logical volume as in the present invention. Thus,

Ichinomiya fails to teach or suggest the transfer of a command, to request pair status, as received from an information processing system, from a first controller of a first storage device to a second, third or Nth storage device with the pair status being sent from the second, third or Nth storage device in response to the command, as claimed.

More particularly, Ichinomiya does not teach or suggest the above described first feature of the present invention as recited in independent claim 30 and the above described second feature of the present invention as recited in independent claim 46, in combination with the other limitations recited in each of the independent claims.

Gallo (U.S. Patent No. 6,813,698) relates to concurrent configurations of drives of a data storage library with drives of a data storage library concurrently configured. A processor transmits library configuration data separately to each drive, initializes a first configuration process state, with a time-out period, for each drive. A drive responds with a status response, the first process state is updated to "completed". A request for drive unique information is transmitted to the responding drive, advancing the process to a second state. Each of the data storage drives is arranged to acknowledge receipt of the configuration data with a status response. See generally Summary, and col. 7, lines 45-57.

As understood, the request for information of Gallo does not function as the command which requests a pair status of a logical volume as in the present invention. Thus, Gallo fails to teach or suggest the transfer of a command to request pair status, as received from an information processing system, from a

first controller of a first storage device to a second, third or Nth storage device with the pair status being sent from the second, third or Nth storage device in response to the command, as claimed.

More particularly, Gallo does not teach or suggest the above described first feature of the present invention as recited in independent claim 30 and the above described second feature of the present invention as recited in independent claim 46, in combination with the other limitations recited in each of the independent claims.

O'Hare (U.S. Patent Application Publication No. 2001/0050915) relates to a multipath multihop remote data facility with a first data storage device being connected to a host, said data operation request being forwarded to said first data storage device and being a multipath multihop system call directing said third data storage device to respond to the data operation request. A depth or level of one associated with the data operation request indicates a first data storage device 32 where a system call may be used to issue a data operation to be performed. See section [0032] and FIG. 2. With a depth of two, for example, if the host processor 34 issues a data operation request to be performed by a second storage data device 36, a remote system call may be used. With a depth of three, the host processor 34 may use a multihop system call, for example, to issue a data operation request to be performed by the third data storage device 40. See sections [0035], [0046]. A variety of different communication path may be selected for sending communications between SYM 112a and SYM 112d. In forming a single communication path, multiple decisions may be made with

respect to a selecting a path through an intermediate and in selecting a communication connection when there are multiple connections between two nodes. For example, in forming the path between SYMs 112a and 112d, a first decision is to select an intermediate node from a particular set of candidates, which in the examples set forth therein is either SYM-2 112b or SYM-3 112c. Once a determination as to which SYM is the intermediate node a decision may be made as to whether there are multiple communication connections available connecting the current data storage, or SYM, with the selected intermediate storage device or SYM. Thus, at Step 132 a start node and a target node in the graph are determined. The start node and the target node may represent host computers or a storage device. Control proceeds to Step 134 where a variable current node is assigned to be the start node. Control then proceeds to Step 136 where intermediate node candidates following the current node are determined at Step 138 a determination is made as to whether there are multiple intermediate node candidates for the current node. An intermediate node is selected as per Step 140 and control proceeds to Step 148 wherein a determination is made as to whether there are multiple communication connections as to between the current node and the selected intermediate node. If there are multiple communication connection such as a LAN, a SAN, and one or more data storage connections, control proceeds to Step 144 where one of the multiple communication connections are selected. See sections [0063] – [0065].

As understood, the data operation request of O'Hare does not function as the command which requests a pair status of a logical volume assign as in the

present invention. Thus, O'Hare fails to teach or suggest the transfer of a command to request pair status, as received from a first controller of a first storage device to a second, third or Nth storage device with the pair status being sent from the second, third or Nth storage device replied in response to the command, as claimed.

More particularly, O'Hare does not teach or suggest the above described first feature of the present invention as recited in independent claim 30 and the above described second feature of the present invention as recited in independent claim 46, in combination with the other limitations recited in each of the independent claims.

Kitamura (U.S. Patent Application Publication No. 2003/0163553) relates to a storage system and method of copying data. FIG. 7 illustrates local file server 100 that communicates with a plurality of remote file servers 200. As illustrated in FIG. 1, and FIG. 2, a remote copy controller 114 instructs the remote-copying means 122 to copy the actual data 640. See section [0050]. The remote-copy controller 114 confirms whether copying to the magnetic disk device 223 of the storage device 220 of the remote file server 200 has been performed. See section [0051]. FIG. 9 illustrates local file server 100 connected to remote file server 200A by a private line 500, which is then connected to remote file server 200B by a private line. WAN 300 also provides another connection.

As understood, the remote-copy means 122 of Kitamura does not function as a command which requests a pair status of a logical volume as in the present

invention. Thus, Kitamura fails to teach or suggest the transfer of a command, as received from an information processing systems, a first controller of a first storage device to a second, third or Nth storage device with the pair status being sent from the second, third or Nth storage device replied in response to the command, as claimed.

More particularly, Kitamura does not teach or suggest the above described first feature of the present invention as recited in independent claim 30 and the above described second feature of the present invention as recited in independent claim 46, in combination with the other limitations recited in each of the independent claims.

Ohno (U.S. Patent Application Publication No. 2003/0229764) relates to a data storage subsystem with a remote-copy operation performed from the first subsystem to both of the second and third subsystems in parallel. FIG. 8 illustrates a storage system 150 including host computers 61 which are connected to a first data storage subsystem 11a via host access bus 62, second data storage subsystem 11b and third data storage subsystem 11c which are connected to the first data storage subsystem 11a through a communication link for data path 63 and a fourth data storage subsystem 11b which is connected to the third data storage subsystem 11c through a communication link or data path 63. Each of the data storage subsystems 11 includes cache memory 24 and shared memory 25. However, the cache memory 24 and the shared memory 25 of the first data storage system 11a is divided into regions so that one of the regions is used for the second data storage subsystem 11b and another of the

regions is used for the third storage subsystem 11c. The cache memory 24 and shared memory 25 of the data storage subsystem is divided into regions such that one of the regions is used for receiving data from the first data storage subsystem and another of the regions is used for the fourth data storage subsystem 11b. See sections [0043] – [0055], and [0088]. A remote-copy operation is performed from the first subsystem to both of the second and third subsystem in parallel. See section [0088]. A transfer of the updated information received from the first subsystem to the fourth subsystem uses the remote-copy function, which may be in asynchronous transfer. See section [0095]. The remote-copy operation may be suspended while update bit maps 33 and update attribute information tables 36 are prepared to manage the updated information. See section [0096], with FIG. 2 illustrating the attribute table configuration.

As understood, Ohno does not control the remote copy operation, whether transfer or suspension, via a command which requests a pair status of a logical volume as in the present invention. Thus, Ohno fails to teach or suggest the transfer of a command to request pair status, as received from an information processing system, from a first controller of a first storage device to a second, third or Nth storage device with the pair status being in response to the command, as claimed.

More particularly, Ohno does not teach or suggest the above described first feature of the present invention as recited in independent claim 30 and the above described second feature of the present invention as recited in independent claim 46, in combination with the other limitations recited in each of the independent claims.

Watanabe (U.S. Patent Application Publication No. 2005/0033828) relates to a first storage unit system and a second storage unit system connected to each other through a third storage unit system. In general, when executing a remote copy process, the first storage unit system responds to a write request received from a computer to transmit to the third storage unit system a journal having write data received from the computer and address information indicative of a storage position to which the write data is written, thereby writing the journal to the third storage unit system. The second storage unit system receives control information issued by the first storage unit system to read and acquire the journal from the third storage system on the basis of the control information. Then, the second storage unit system follows the address information contained in the

journal to write the write data contained in the journal to a disk inside the second storage unit system. See generally sections [0009], [0010], and [0011]. FIG. 17 illustrates an embodiment having an alternate data path. In the system shown in Fig. 17, a remote copy link 1701 for coupling a primary storage subsystem 104a and a secondary storage subsystem 104b is provided. The remote copy link 1701 is usable as (1) an alternating path for remote copy when an intermediate storage subsystem 104c becomes faulty or (2) as a path for control information communication. Thus, in the event that a fault occurs in the intermediate subsystem 104c a remote copy cannot be executed through the medium of the intermediate storage subsystem, the primary and secondary storage subsystems can execute remote copy by using the remote copy link 1701. Further, during normal operation, control information 107 can be transmitted/received through asynchronous communication by using the remote copy link 1701. Thus, for example, the control information 107 can be forwarded from the primary storage subsystem 104a to the secondary storage subsystem 104b by using the remote copy link 1701. See sections [0180], [0182].

As understood, the remote copy link of Watanabe does not function as a command which requests a pair status of a logical volume as in the present invention that propagates from storage unit to storage unit. Thus, Watanabe fails to teach or suggest the transfer of a command to request pair status, as received from an information processing system, a first controller of a first storage device to a second, third or Nth storage device with the pair status being sent from the second, third or Nth storage device in response to the command, as claimed.

More particularly, Watanabe does not teach or suggest the above described first feature of the present invention as recited in independent claim 30 and the above described second feature of the present invention as recited in independent claim 46, in combination with the other limitations recited in each of the independent claims.

Gagne (U.S. Patent No. 6,209,002) relates to a data storage facility for transferring data from a data altering apparatus, such as a production data processing cite, to a remote data receiving cite. Fig. 1 illustrates a data processing network 20 having a local or production cite 21, a first remote cite 22 and a second remote cite 23. The first remote cite 22 is connected to the local production cite 21 and the second remote cite 23 is connected to the first remote cite 22. The local/production cite 21 includes a host 24, a host adaptor 25, a logical volume 26 and a remote adaptor 27 which provides the connection to the remote adaptor 31 of the first remote cite 22. A redundancy scheme for be implement by, for example, mirroring the data in the R1 logical volume 26 at the first remote cite 22 such that each time the host 24 write data to the R1 logical volume 26, the remote adaptor 27 responds by transferring that data to the remote adaptor 31 in the first remote cite 22 for transfer to a R2 logical volume 32 included therein. The first remote cite 22 further includes a BCV/R1 logical volume 34 which could, for example, include any dedicated logical volume within the first remote cite 22 that is different from the physical disk drive that contains the R2 logical volume 32. Thus, for example, BCV/R1 logical volume 34 can synchronize with the R2 logical volume 32 and data from the BCV/R1 logical

volume 34 can be transferred via the remote adaptor 35 to the second remote cite 23. The second remote cite includes an R2 logical volume 40 and a BCVR1 logical volume 42 that can synchronize with R2 logical volume 32 and BCVR1 logical volume 34 of the first remote cite respectively. See col. 3, lines 42 – col. 4, line 12 and col. 4, line 44 – col. 5, line 25 and Figs. 1 and 2.

As understood, Gagne does not function as the command which request a pair status of a logical volume as in the present invention. Thus, Gagne fails to teach or suggest the transfer of a command to request pair status, as received from an information processing system, from a first controller of a first storage device to a second, third or Nth storage device with the pair status being sent from the second, third or Nth storage device in response to the command, as claimed.

More particularly, Gagne does not teach or suggest the above described first feature of the present invention as recited in independent claim 30 and the above described second feature of the present invention as recited in independent claim 46, in combination with the other limitations recited in each of the independent claims.

Fukuzawa (U.S. Patent No. 6,098,129) teaches a communications system and data backup method for use in a heterogeneous computer system, for example, as illustrated in Figs. 1 and 2. Fukuzawa, teaches a use of a table for assigning vacant memory addresses in a local subsystem to memory of an I/O subsystem for an open system such that when a request of variable length record format is received from a host the request is converted into a fixed length

record format. Thus, Fig. 4 of Fukuzawa illustrates a local controller connected disk data 314 which is the data indicating the connections of the controller and the like. Remote controller connected disk data 315 is also provided for indicating, for example, data corresponding to a disk drive not directly connected to the disk controller 104. Thus, the local controller connected disk data 314 includes device address 400 for discriminating a disk device to be read from or written into by the host, local controller connection data which indicates whether or not the disk drive corresponding to the controller connected disk data is actually connected to a controller, remote controller connection point which indicates whether or not the controller connected disk data 314 is assigned to a disk drive connected to a remote controller. The local controller connected disk data 315 includes a connection controller address 500 which represents an address of a controller connected to a disk device corresponding to the remote controller connected disk data 315 and a disk address 501 which represents the address assigned in the controller actually connected to a corresponding disk drive. Both the local controller connected disk data 315 and the remote controller connected disk data 315 are set from the service processor 109. According to the embodiment, the main frame 101 recognizes that the disk drive group B 104 (disk C and D) is also connected to the disk controller A 104 through the disk controller B 113 as shown in Fig. 6, taking advantage of the local controller disk data 314 and the remote controller connected disk data 315 shown in Figs. 4 and 5. This due to the fact that the vacant address of disk drive available in the disk controller A 104 is assigned by the disk controller A 104 to a disk drive of the I/O

subsystem for an open system. See col. 7, line 25 through col. 8, line 20 and Figs. 1, 2, 4 and 5.

As understood, Fukuzawa does not function as the command which a request a pair status of a logical volume as in the present invention. Thus, Fukuzawa fails to teach or suggest the transfer of a command to request pair status, as received from an information processing system, from a first controller of a first storage device to a second, third or Nth storage device with the pair status being sent from the second, third or Nth storage device in response to the command as claimed.

More particularly, Fukuzawa does not teach or suggest the above described first feature of the present invention as recited in independent claim 30 and the above described second feature of the present invention as recited in independent claim 46, in combination with the other limitations recited in each of the other independent claims.

Urabe (U.S. Patent No. 6,591,351) discloses, for example, as illustrated in Figs. 1-3 that the local host 1a request pair status to the local DKC 13a and that the local DKC 13a acquires the latest SVOL write sequence number from the remote DKC 13b and returns such to the host 1a as an acknowledgment against a request for the latest SVOL write sequence number sent from the host 1a. More particularly, in order to first in the command the pair state of the PVOL (principle volume) 10a in the disk array device 13a, the sink command 31 issues a PVOL state acquisition command 201 to the disk array device 13a (PVOL state acquisition step 32). In response, the disk controller serving as a control section

of the disk array device 13a returns a PVOL pair state 202. Upon receiving the PVOL pair state from the disk array device 13a the middleware 3a checks the PVOL pair state. If the state is other than pair then the middleware 3a regards the duplication as suspended and returns synchronization failure to the APP 2a. See col. 9, line 56 – col. 10, line 53 and Figs. 1-3.

As understood, Urabe does not teach or suggest a command being used to request a pair status of a first logical volume in a second storage device from an information processing device to a second storage device via a first storage device and that the second controller controlling to store data in the second disk drives of the second storage device receiving the command from the first storage device replies with the pair status of the first logical volume to the information processing device via the first storage device as claimed.

More particularly, Urabe does not teach or suggest the above described first feature of the present invention as recited in independent claim 30 and the above described second feature of the present invention as recited in independent claim 46, in combination with the other limitations recited in each of the other independent claims.

Therefore, since the cited references fail to teach or the above described first feature of the present invention as recited in independent claim 30 and the above described second feature of the present invention as recited in independent claim 46, in combination with the other limitations recited in each of the independent claims, it is submitted that all of the claims are patentable over

the cited references whether said references are taken individually or in combination with each other.

F. Conclusion

Applicant has conducted what it believes to be a reasonable search, but makes no representation that "better" or more relevant prior art does not exist. The United States Patent and Trademark Office is urged to conduct its own complete search of the prior art, and to thoroughly examine this application in view of the prior art cited herein and any other prior art that the United States Patent and Trademark Office may locate in its own independent search. Further, while Applicant has identified in good faith certain portions of each of the references listed herein in order to provide the requisite detailed discussion of how the claimed subject matter is patentable over the references, the United States Patent and Trademark Office should not limit its review to the identified portions but rather, is urged to review and consider the entirety of each reference, and not to rely solely on the identified portions when examining this application.

In view of the foregoing, Applicant requests that this Petition to Make Special be granted and that the application undergo the accelerated examination procedure set forth in MPEP 708.02 VIII.

G. Fee (37 C.F.R. 1.17(h))

The fee required by 37 C.F.R. § 1.17(h) is to be paid by:

☒ the Credit Card Payment Form (attached) for \$130.00.

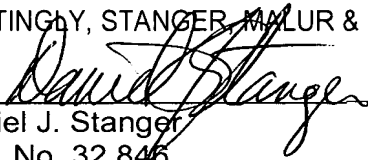
☐ charging Account _____ the sum of \$130.00.

A duplicate of this petition is attached.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.,
Deposit Account No. 50-1417 (H-1215).

Respectfully submitted,

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.



Daniel J. Stanger
Reg. No. 32,846

DJS/CIB/jdc
(703) 684-1120